October 2017

NSSC This Month

U.S. Army Garrison Natick Public Affairs Office

Food Technologies

Natick works with New Hampshire National Guard

NAGC

2016 and 2017 National Association of Government Communicators
First Place, External Newsletter

Commander's Corner

Brig. Gen. Anthony W. Potts
NSSC Senior Commander

An Amazing Month ...

The Great Pumpkin has yet to materialize, but October has already yielded plenty of tricks and several treats.

During the Association of the United States Army annual meeting, Acting Secretary of the Army Ryan McCarthy and the Chief of Staff of the Army, Gen. Mark Milley, announced plans for the establishment of a "modernization command" by the summer of 2018.

The Chief said the new command will advance the Army's six modernization priorities: long-range precision fires, a next-generation combat vehicle, future vertical lift platforms, a mobile and expeditionary Army network, air and missile defense capabilities, and Soldier lethality.

Lt. Gen. Edward Cardon is heading a task force created to determine what elements of our Army will comprise the command and how it will operate. He will report back to Gen. Milley in 120 days.

This is exciting news fraught with weighty implications for the institutional Army and how it functions. I recommend paying close attention to this initiative and related developments.

Soldiers may soon change the way they dress as well as how they modernize. "Pinks and Greens" debuted at AUSA, and earned rave reviews from some of our most discerning critics. According to one Army Times poll, 83 percent of responding Soldiers liked the new uniform. Congratulations to the NSRDEC clothing design team for their essential role in the development of the "new" uniforms – which harken back to the Second World War era in appearance.

Uniform development personnel weren't the only Natick teammates stitching together a great appearance. Congratulations to the dynamic little team that put on a superb Hispanic Heritage Month fiesta featuring song, dance and even flan. A special thanks to Sgt. Maj. Jose Velazquez, a Lawrence, Massachusetts native, for sharing his inspirational story with eloquence befitting a senior Army Public Affairs leader. An energetic Disability Employment Awareness Month program followed the next week, providing valuable insights and including engaging testimony from Paul Carew, an invaluable community partner and tireless advocate for area veterans as well as disabled Americans.

Finally, I can't let October pass without wishing our garrison partners "happy birthday" as they commemorate the establishment of U.S. Army Installation Management Command. IMCOM pioneered important efficiencies and served as a model for other services. I sincerely appreciate your fine and mostly thankless work on behalf of our Soldiers, families and Team Natick!

Brig. Gen. Anthony W. Potts
NSSC Senior Commander

NSSC This Month

NSSC
Senior Commander
Brig. Gen. Anthony W. Potts

Garrison Commander
Lt. Col. Bryan Martin

Command Sergeant Major
Command Sgt. Maj. Michael R. Pintagro

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About this newsletter
NSSC This Month is a monthly newsletter covering NSSC news within the Army and commercial media.

NSSC This Month is maintained by the USAG Natick Public Affairs Office.

To subscribe to *NSSC This Month*, please contact Tazanyia Mouton at tazanyia.l.mouton.civ@mail.mil

On the Web: www.army.mil/natick

Cover photo: Staff Sgt. Rick Frost, New Hampshire National Guard

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Photo: Staff Sgt. Rick Frost, New Hampshire National Guard

NSSC This Month

NSSC News Briefs ...

Health Benefits Program Premiums

Program premiums for 2018 Federal Employee Health Benefits have been announced on the Office of Personnel Management website. Please visit https://www.opm.gov/news/releases/2017/10/opm-announces-2018-federal-employees-health-benefits-fehb-program-premiums/ if you would like to view this information. The FEHB Open Season is November 13 through December 11.

NSSC Soccer Team

The NSSC Soccer team is looking for input from all who would like to play and we are looking to see what location best fits the NSSC community. Please visit https://www.surveymonkey.com/r/CTS3GYY to have your voice heard. Once all the results are in, we will choose the best day and location that fits individual's schedules. We will publish the results at a future date.

Research Study Volunteers Needed

Female volunteers are needed for a 16-day study to determine the hormone and calcium response to exercise while carrying a heavy load. You must be a woman between the ages of 18 and 42, recreationally active (exercise 2 to 5 times per week), stable weight for two months, and no history of diabetes, cardiovascular disease or kidney disease. The study includes two full days and two overnight stays at the USARIEM research facility and an additional two 2-to-3 hour visits, four 8-hour visits and two 30-minute visits. You may also be eligible for compensation. For more information, contact Anna Nakayama anna.t.nakayama.ctr@mail.mil or Erin Stromberg erin.g.stomberg.civ@mail.mil.

Garrison Spotlight

Debby Dennehy-Malatantis

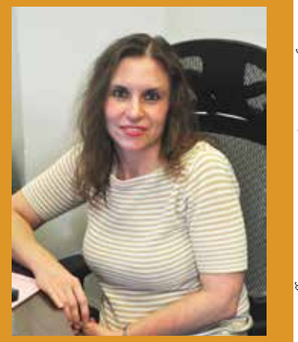


Photo: John Harlow, USAG Natick Public Affairs

What Debby does:

Debby was recently promoted to the supervisory budget analyst position. Prior to that, she was a budget analyst with the resource management directorate.

Resource Management Director, Jaylynn Kurzontkowski on Debby:

"Debby has been a tremendous asset to our team since her arrival 16 months ago. Before coming to Natick, Debby was a budget analyst for USAG Rhenland Pfalz for a little more than two years. While working here as a budget analyst, she diligently works on funding purchase requests, issuing Permanent Change of Station orders, reviewing Defense Travel System authorizations and vouchers, providing fiscal advice to customers, securing additional required funds, and a variety of other resource management tasks. Additionally, Debby covered down as not only detailed to the Supervisory Budget Analyst position, but provided significant support for director responsibilities while I was out. Her ability to step up into this role ensured a successful fiscal year end close for FY17 and was invaluable during an already stressful time."

FAFSA Applications

The 2018-2019 Free Application for Federal Student Aid is now available online at fafsa.gov. Most colleges and universities use this form to determine students' eligibility for aid, grants and scholarships. Determination for eligibility for Federal Pell Grants, which do not have to be repaid, are also made with this form and must be resubmitted each year. For more information or for a list of scholarships for military families, contact the ACS Financial Readiness Program at diane.k.magrane.civ@mail.mil.

Focal Point

Self-Defense Training

Sgt. Erik Serrano, a certified combatives instructor, provided self-defense training to NSSC personnel Oct. 17 as part of Domestic Violence Prevention Month. Above: Sgt. Serrano and a student demonstrate a basic wrist control to defend against an attacker's strikes. Lower left: Sgt. Serrano demonstrates how to properly perform a guillotine choke. Lower right: A student performs the guillotine choke on Sgt. Serrano.

Photos by Tazanyia Mouton, USAG Natick Public Affairs Office

Legal Corner

Understanding Courts-Martial

Bergdahl pleads guilty to desertion and misbehavior

By Capt. Erika L. Andresen, NSSC Command Judge Advocate

Photo: Ted Richardson, Associated Press

People know Bowe Bergdahl as the Soldier who was held in captivity in Afghanistan for five years. He was released to the United States in exchange for five Taliban detainees. Shortly after he was freed, rumblings started about how Bergdahl wasn't a war hero and abandoned his squad, leaving them in great danger. An investigation into the events surrounding Bergdahl's capture was initiated. The results of that investigation supported Bergdahl's being charged with acts in violation of the Uniform Code of Military Justice, or UCMJ.

The Charges, generally

Sgt. Bergdahl was charged with violating UCMJ Article 85, Desertion, and UCMJ Article 99, Misbehavior Before the Enemy. Desertion is different from the commonly known Absence Without Leave, or AWOL, which is when someone abandons their post or doesn't turn up for duty temporarily. Desertion adds an element: There needs to be an intent to never return. Misbehavior can include running away, cowardly conduct, or endangering the safety of one's unit through intentional misconduct.

The Strategy

A lot of strategy is involved with a court-martial from the defense side. The government needs to prove, beyond a reasonable doubt, that the accused (a defendant) violated one of the punitive articles of the UCMJ, after which, the accused and defense lawyer will evaluate the evidence. The government and defense are required to disclose all of their evidence and witnesses to each other prior to the trial beginning. This affords both sides the opportunity to craft their prosecution/defense fairly, and potentially work out an agreement before the start of the trial, to include dismissing some of the charges. This exchange of evidence also informs the accused on whether or not he will plead guilty or not guilty to the charges. Bergdahl decided to plead guilty to both charges.

An accused also gets to decide whether or not he wants a panel (a jury) made up of mostly enlisted Soldiers or mostly officers, or a military judge alone to determine the outcome. Bergdahl decided on a judge-alone court-martial, presumably due to the media coverage and intense responses to the circumstances.

The Process

Guilty pleas come with a lot of negotiating; sometimes a guilty plea is made in exchange for lesser charges. Sometimes both sides work out a "stipulation of fact" that lays out details in the case to the satisfaction of both sides. The government can benefit by not having to prove the charges, saving money and time for resources used, paying for expert testimony, and paying for witness travel. The defense could benefit by negotiating a cap on confinement for the lesser of the actual punishment adjudicated or what they agree to in advance. Guilty pleas also speed the process along for the accused so he can move on with the punishment and thusly, his life. The defense always hopes the sentence will be more lenient by virtue of the fact that the accused is admitting his mistakes.

A guilty plea isn't just, "I'm guilty, Your Honor." The judge needs to ensure the person pleading guilty actually believes he is guilty of the crime. This part of the court-martial is called "providency," and is a very meticulous process. The judge will list every element of the crime, one by one, and ask the accused to explain, in his own detailed words, how each element is met. If there is any doubt in the judge's mind that the accused believes in his own guilt, the judge will not accept the guilty plea and make it a contested charge. Bergdahl's plea was accepted by the judge.

What's next?

The judge determines the punishment for the crimes during sentencing. The government and defense both make arguments and produce witnesses that discuss the impact of the potential sentence or the accused's actions on people affected. Sentencing arguments for Bergdahl began October 25. The government will likely argue how service members were seriously wounded in Bergdahl's rescue attempts. The defense will likely argue that Bergdahl's 5-year-long captivity was punishment enough, and no further confinement is necessary. Regardless, only Sgt. Bergdahl can appeal the outcome if he so choses.

*Disclaimer: Information herein is based on general knowledge and experience with courts-martial, not direct knowledge of Sgt. Bergdahl's case.

Sgt. Bowe Bergdahl exits a courthouse at Fort Bragg, N.C. after a pretrial hearing Jan. 12, 2016.

CPAC Corner

Defining Hiring Authorities

Commands guarantee mission is still accomplished

By Courtney Landry, Director, Civilian Human Resources Agency

Photo: U.S. Army

In the current environment of fiscal uncertainty, commands have had to utilize the entire realm of hiring authorities available to them to ensure the mission is not compromised. Often times these different approaches to hiring can be confusing to internal applicants. Specifically, the use of temporary promotion/reassignment, term appointments, and temporary appointments seem to raise a lot of questions regarding what each means, what the differences are, and what the impact will be on a current employee if they accept an offer under one of these authorities. Below you can read about some of these basic differences.

A **Temporary Promotion/Reassignment** is applicable to current federal employees. A hiring manager can use this approach to fill a temporary command need while allowing a current federal employee to gain experience in a different occupational series and/or time-in-grade if temporarily promoted to a higher grade level These appointments, when competed, can be extended up to five years. At the end of the five years, you return to your official position of record. However, if the vacancy announcement under which you applied indicated that the position could be converted to permanent without further competition, you may find yourself residing permanently in this assignment. The decision to make the temporary reassignment/promotion permanent is a management decision.

A **Term Appointment** is open to all U.S. citizens. Again, this is intended to fill a temporary command need. Term appointments must be more than one year, extendable to six years. At the end of a term appointment, your employment can be terminated. However, a recent change in law makes it possible for management to choose to advertise for a "modified" term appointment which allows for the conversion of a term employee to a permanent position. For this to occur, there must be a statement on the vacancy announcement that the position may be converted to permanent at a later date.

A **Temporary Appointment** differs from a temporary promotion/reassignment. A temporary appointment is open to all U.S. citizens and is intended to meet non-permanent staffing needs.

Temporary appointments can be for a specified period of time, not to exceed three years. An individual occupying a temporary appointment may be terminated at any time.

When/if you are considering applying to a new job opportunity, it is important that you read the entire vacancy announcement. This will ensure that you understand the nuances of the position that you are applying to, and will limit any confusion or surprises in the future.

For questions on any and all hiring authorities, please contact your CPAC staffing specialist.

Natick CPAC – "Excellence through Partnership"

Shaping the Future

Natick celebrates National Hispanic Heritage Month

By John Harlow, USAG Natick Public Affairs/NATICK, Mass. (Oct. 20, 2017)

Photos: David Kamm, NSRDEC Strategic Communications

He could have easily been a statistic; he could have ended up dead or in jail, but Sgt. Maj. Jose Velazquez chose a different path and that led to a career in the Army and his position as the Sergeant Major of Army Public Affairs.

"Twenty-six years ago, I was struggling not to be a statistic, but in many ways, I already was," said Velazquez. "The sole child of an unwed Puerto Rican mother living in the projects of Lawrence, Massachusetts, I was a statistic the day I was born. By 1990 I had already failed out of community college and (was) hired by a clothing factory working in what was known as the sweat shop. This is where newly-made suits were pressed before being shipped to stores."

Velazquez spoke of the proud people who worked there, some having been there 30 years or more.

"What really seared into my memory was the blank stares of the good, decent men and women who worked there," said the sergeant major. "It felt like their hopes and dreams had died amongst those mill walls."

Not wanting the same for himself, Velazquez listened to the advice of an older co-worker when he suggested that Velazquez should join the Army.

The response he received from his mother wasn't what he expected.

"'Are you crazy son?'" Velazquez said was his mother's reaction. "She wasn't sold on the idea, but she knew I wanted it and knew it was my ticket out of the world we lived in. She gave me a hug and told me, 'If you're going to do it, then make it to the very top.'"

More than 11 percent of the Total Army is made up of Hispanic American Soldiers and one of them has made it to the very top… the kid from the sweat shops… Sgt. Maj. Jose Velazquez.

"The Army saved my life and I am forever grateful for the opportunities it provided me that I couldn't have dreamed of," said the sergeant major. "My mother wanted more than anything that I finish my education and become the first person in my family to earn a college degree. Because of the Army, and before my mother passed away, I was able to hand her a bachelor's degree with my name on it. I can't tell you the pride in her eyes as she held that piece of paper. She said, 'My son is somebody!'"

As the sergeant major closed, he reflected on the Army Values and recognized the brave Hispanic men and women who had served before him.

"I stand proudly amongst my Hispanic and Latino brothers and sisters as we shape the bright future of America through our love of family, of community and of country," said Velazquez.

The program concluded with a Latino dance performance by Jonathan Burke and Sasi Marcelino of Masacote Entertainment and a musical performance by Derwin Hernandez.

> **"The Army saved my life and I am forever grateful for the opportunities it provided me that I couldn't have dreamed of. Because of the Army, and before my mother passed away, I was able to hand her a bachelor's degree with my name on it. I can't tell you the pride in her eyes as she held that piece of paper. She said, 'My son is somebody!'"**
>
> Sgt. Maj. Jose Valazquez, Sergeant Major of Army Public Affairs

Jonathan Burke and Sasi Marcelino perform a Latino dance during the Hispance Heritage Month observance program, Oct. 13.

Service Culture Initiative

Natick command group signs pledge to its customers

By John Harlow, USAG Natick Public Affairs/NATICK, Mass. (Oct. 25, 2017)

The Army-wide Service Culture Initiative campaign was formally launched at the Natick Soldier Systems Center as a pair of pledges were signed by the Garrison Commander, Lt. Col. Bryan Martin.

SCI represents the U.S. Army Installation Management Command's long-term commitment to providing the best possible customer service to Soldiers, families, and communities. It is based on the premise that excellence in customer service is a result of how an organization treats its employees. If the employees have engaged and caring leaders, feel valued and respected for the work they do, are properly trained, and live the Army Values, they will, in turn, pass forward this positive attitude to their customers and co-workers.

Martin first signed the "Pledge to our Customers" at the Natick Leader Advisory Board on Oct. 12.

The pledge states that We (the garrison) will:

- Deliver quality products and services
- Build relationships – with communities, with our customers and with each other
- Be kind and respectful to those we serve
- Conduct ourselves professionally
- Welcome and encourage feedback; we will communicate and listen
- Provide neat, professional and aesthetically pleasing facilities
- Take ownership of our actions.

At the Garrison All Hands, Martin signed the pledge to the garrison workforce.

The pledge states that we pledge to position you for success with:

- An impactful on-boarding and orientation experience to welcome you to the IMCOM team
- Clear performance standards-- to include standards for service excellence
- An Individual Development Plan, or IDP, developed with your supervisor and reviewed during periodic counseling
- Opportunities for personal growth and professional development
- A recognition program to reward service and performance excellence
- Engaged leaders who seek and welcome your input and take action to continuously improve the organization
- An organization that embraces the concept of team, teamwork and empowerment
- A promise to hold ourselves and each other accountable.

Command Sgt. Maj. Michael Pintagro and Sean Lehane,the deputy garrison commander, also signed the pledges.

Photo: John Harlow, USAG Natick Public Affairs

Lt. Col. Bryan Martin, USAG-Natick commander signs a pledge to the customers as part of the U.S. Army Installation Management Command's Service Culture Initiative, Oct. 12.

Honoring a Hero

Plaque deciation remembers former senior commander

By John Harlow, USAG Natick Public Affairs/NATICK, Mass. (Oct. 4, 2017)

Photo: U.S. Army

In the lobby of the headquarters building of the Natick Soldier Systems Center, there is now a plaque honoring the life of one of its former senior commanders, Maj. Gen. Harold J. Greene.

Greene was killed while serving as the deputy commanding general of the Combined Security Transition Command – Afghanistan on Aug. 5, 2014, at a training facility in the Afghan capital of Kabul.

"I cannot think of people or a place he loved more," Dr. Susan Myers, Greene's widow, said. "We were grateful for all who were able to share this special event."

Greene served as the NSSC senior commander from 2009 to 2011 and lived the values of "People First, Mission Always." Not just during his time at NSSC, but throughout his more than three decades in uniform serving our nation.

Jennifer Potts, deputy product director, Scout/Attack, Non-Standard Rotary Wing Aircraft Project Office, PEO Aviation, was one of the Department of the Army civilians mentored by the late general.

"The first time I sat down across the table from him, he commented he generally mentored Army officers, but because I asked, he was willing to share his time and insight with me," said Potts. "He had no obligation to share his time, wisdom, experience or thought, yet he did."

Her husband, the current NSSC senior commander, Brig. Gen. Anthony Potts, was also mentored by Greene. "I remember the first time the 'Boss' (Maj. Gen. Greene) called us into his office," Potts said. "I really thought I was in trouble. I did something that upset Jen, and she ratted me out."

Potts shared some of the leadership philosophies that he learned from Greene. "Lead by example – the people you lead are looking to you as an example of what right looks like," Potts said. "Be humble – you are part of a team. You may outrank everyone in your formation, but be open to the guidance you receive from your subordinates. I would add to that, when you have it all figured out, it's time to retire. Don't hesitate to make decisions – this doesn't mean make rash decisions. Get as much information as you can and make the best decision you can so you don't paralyze your organization through indecision. Be a team player and a team builder – your team is part of a bigger team. You need to find out how to fit into the big picture while building strength in the team you are leading. Take your work seriously, but don't take yourself too seriously – this describes General Greene.

"General Greene took the mission to protect all service members serving in harm's way personally. He challenged all of our research laboratories to do everything they can to give every Soldier, Sailor, Airman and Marine the best chance to come home to their parents, husbands, wives and children. He was also the guy who ran the installation Jingle Bell Run dressed as Santa Claus and the guy who sat in the dunk tank for an hour and talked smack, then matched every donation to benefit our Better Opportunities for Single Soldiers (BOSS) program. General Greene was serious about his duties as a Soldier, and he did it with a smile on his face."

General Potts was joined by members of Greene's family as they unveiled the plaque that reads:

May this plaque serve as a tangible reminder of the countless intangible ways Major General Harry Greene touched all who knew him. He was one; but we whom he touched are many.

With his kind words, genuine care, firm guiding hand, clear wisdom, infectious good cheer and relentless call to duty, Major General Harry Greene lives on in our hearts – Soldiers, civilians and friends, whether close to home or far away.

We take what we learned from him and pass it on. We remember him. We honor him. And we miss him dearly.

Capt. Matthew Greene spoke on behalf of the family after the plaque was unveiled.

"Dad always lived by and exemplified the cliché phrase 'Mission First, People Always,'" said Greene. "He expected it of himself, all of those around him and his family. I think he said it wrong without realizing it. He conveniently forgot the perfectionist attitude he hid underneath it all. The correct translation is 'Mission First, People Always, Sacrifice Never'."

The captain spoke of something he had in common with almost everyone who came in contact with Greene.

"Who in this group wasn't greeted first thing in the morning with … 'What have you done for your country today?' I think it was always the first thing I heard from him when I spoke to him, even as a kid, let alone as an officer, cadet or Soldier," said Greene. "Usually, the response was, 'Dad, it's 6:30 in the morning, and other than PT, what do you expect from me?'"

He shared his father's thoughts about the Natick workforce.

"Dad was, and we are, extremely proud to even know every, single one of you and consider you all our family," said Greene. "The importance of the work that is done here is beyond description. In the turbulence of war, there is no room for halfway or close enough. Ballistic plates can't fail, ruck sacks can't fall apart and MREs can't go bad. This value of consummate professionalism is something we strive to instill in every Soldier and is obviously apparent in everything done, tested and evaluated here.

"As evidence of that, let me tell a quick story. The date was April 23, 2013, in Tagab, Afghanistan, and 2nd Lieutenant Jeff Meek and his company came under fire from what was suspected to be two military-age males. As they began to return fire, Jeff's head snaps back, throwing him from his cover and giving him a massive concussion. A 7.62mm round slammed into his Army Combat Helmet almost square. Jeff was transported to Bagram, where he spent the next six days in the traumatic brain injury clinic. Jeff received a Purple Heart instead of his parents receiving a folded flag because of the 'Sacrifice Never' attitude. Maj. Jeremy Haynes, Maj. Gen. Ben Bathurst and 28 others from that fateful day we lost Dad are alive today because of the work that gets done here."

"Dad was a special person and he charges us to do our best every single day and I would expect that would continue as it always has here at Natick," Greene said. "Mission First, People Always, Sacrifice Never."

> **Dad was, and we are, extremely proud to even know every, single one of you and consider you all our family. The importance of the work that is done here is beyond description.**
>
> Capt. Matthew Greene

Photo: David Kamm, NSRDEC Strategic Communications

Photo: Tazanyia Monton, USAG Natick Public Affairs

Photo: Staff Sgt. Rick Frost, New Hampshire National Guard

Food Technologies

Natick works with New Hampshire National Guard

By Jane Benson, NSRDEC Public Affairs/NATICK, Mass. (Sep. 19, 2017)

Opposite: A Soldier and an Airman enjoy the new meal offerings during a focus group led by the Natick Soldier Research, Development and Engineering Center's Combat Feeding Directorate, or CFD. Soldier feedback plays a key role in food technologies developed by CFD. The focus group was part of a Joint Service Tactical Field Feeding Exercise held at the Departments of the Army and Air Force Joint Force Headquarters, New Hampshire National Guard, in Concord, New Hampshire.

Members of the Combat Feeding Directorate, or CFD, at the Natick Soldier Research, Development and Engineering Center participated in a nationwide Joint Service Tactical Field Feeding Exercise held at the Department of the Army and Air Force Joint Force Headquarters, New Hampshire National Guard.

CFD's participation in the event included presentations on a variety of subjects, including the Armed Forces Recipe Service and the Go for Green Program, which is the Army's dining facility nutrition education program.

CFD subject matter experts, or SMEs, led focus groups examining ration advances, seeking out Soldier feedback. SMEs also held refresher training for non-commissioned officers on field feeding kitchen equipment and systems. The field-feeding equipment was jointly developed by CFD and Product Manager Force Sustainment Systems, or PM-FSS.

"This is an excellent opportunity to interact with a key regional partner," said Stephen Moody, director of NSRDEC's CFD. "This strategic relationship helps to ensure that future combat rations and field feeding equipment are 'Warfighter Recommended, Warfighter Tested and Warfighter Approved.'"

Cpt. Benjamin Leonard, State Food Service Officer for the New Hampshire Army National Guard, and his team organized, planned and executed the event.

"As a team we have been able to reach out and build relationships with the best subject matter experts in all the different fields of food service," said Leonard. "These subject matter experts are from Natick Labs; Johnson and Wales; Joint Culinary Center of Excellence, Fort Lee, Virginia; and National Guard Bureau HQ. Our service men and women deserve the best training possible, and I feel that they received that."

Leonard thanked CFD for its support in the 2016 and 2017 Joint Food Service Field Training Exercise.

"It is important for service members to understand the big picture of operations," said Leonard.

"Having NSRDEC come and speak about the research and development of combat feedings allows these service members to have a better understanding of the full spectrum of the operations to feed our service men and women on the battlefield."

The CFD-led Soldier focus groups were given existing and potential new items to sample, providing insight into Soldier likes and dislikes and what new items the Soldiers would like to see added to operational rations.

"Giving service members the opportunity to taste and give feedback to the research teams who are preparing the future menus for operational rations makes the service member be part of that process," said Leonard.

One of the items tested was a compressed food bar invented by CFD's Dr. Tom Yang, which he has dubbed the "Salad Bar."

To make the bar, Yang, a senior food technologist, took fresh salad ingredients and then covered them in a honey mustard dressing. The dressing helps with vitamin absorption and taste. He then investigated technologies and made the salad into a nutrition bar that can be eaten as a meal or a healthy snack.

"The prototype Salad Bar is produced using a conventional drying process and compression," Yang said. "It is a low-weight, low-volume, shelf-stable and fresh-like vegetable mixed with salad dressing. It can be eaten as is or can be quickly rehydrated into a salad."

The bar is part of CFD's ongoing efforts to develop more dried foods as a way to lighten the Soldier's load. The Salad Bar was popular with the Soldier participants.

"It tastes like a Caesar granola bar," said Sgt. Scott Christie of the New Hampshire Army National Guard. "Well done."

"I liked the concept of the Salad Bar," said Spc. Devan Bradley from New Hampshire's Army National Guard. "I'd like to see it in an MRE in the future."

Amazingly, the Salad Bar can be put in water to rehydrate and become a salad again.

New Hampshire Governor Chris Sununu, who attended the ration evaluation, was impressed with Natick's offerings, comparing them to something you would see on the television show, "The Jetsons."

CFD scientists believe that working side by side with Soldiers to develop the best items is an important part of the process. Gathering written responses to surveys plays an important role, and working face to face with Soldiers, particularly when they are trying food items, garners even more insights.

"I like to see their faces, to see the authentic reaction," said Sydney Walker, a biological aide in CFD.

"The collaboration with the New Hampshire Army National Guard has proven to be of real value to the Food Engineering and Analysis Team," said Laurie Oleksyk, team leader of CFD's Food Engineering and Analysis Team. "The participants in the annual Field Training Exercise have varied backgrounds and experience with military rations. Their feedback on novel ration prototypes gives us great insight on their wants and needs, their likes and dislikes with regard to future ration items. And we're able to obtain this feedback very early in the ration development lifecycle. Their training facility is outstanding; it's a terrific local resource."

"Interaction with Soldiers allows Natick scientists to observe the tasting of our prototype ration components, getting Soldier feedback as a guideline for future improvement of these samples, and getting Soldiers to appreciate Natick's efforts to improve their rations," Yang said. "This interaction is the most effective and direct communication to find out what Soldiers would like for their field rations."

Leonard praised Moody and Jeremy Whitsitt, CFD deputy director, for their support and for helping make this national-level training a huge success.

"The New Hampshire National Guard is grateful for the amazing partnership that we have been able to build with NSRDEC," Leonard said.

"This is a great opportunity for both organizations."

Photo: NASA

Shuttle Disaster

Natick hosts engineer who warned of fateful issue

By Jane Benson, NSRDEC Public Affairs/NATICK, Mass. (Oct. 3, 2017)

"I hate the nomenclature 'whistleblower,'" said Allan McDonald, an engineer who refused to sign off on the launch of the Space Shuttle Challenger. "I'd like to change it to 'truth tellers.'"

The importance of finding the courage to tell the truth and the importance of creating a work culture where speaking up is encouraged were at the heart of a talk given recently by McDonald at the Natick Soldier Research, Development and Engineering Center. McDonald's presentation discussed "Safety and Ethics Learned from the Space Shuttle Challenger and Columbia Accidents" and was followed by a question and answer period.

In the mid-1980s, McDonald served as the director of the Space Shuttle Solid Rocket Motor Project and as the Morton Thiokol project manager for the O-Rings on the Solid Rocket Boosters. He refused to sign off on the required launch recommendation report for the Space Shuttle Challenger because he believed that one of parts, the O-ring, might not hold up under the cold temperatures predicted for Jan. 28, 1986, the day of the launch.

He knew that the launch was behind schedule, but he knew that safety rather than schedules and budgets had to drive the decision of whether or not to launch. He and other engineers determined that the shuttle should not be launched under 53 degrees Fahrenheit.

His boss overrode that decision and called for the launch to go on as planned with no temperature restrictions.

The Challenger launch went ahead as scheduled, killing all seven people on board, including Christa McAuliffe, a New Hampshire teacher who was chosen to be the first teacher in space. McDonald noted that he thought extra caution would be taken given that McAuliffe was not only the first teacher but also the first civilian to fly into space, but unfortunately this was not the case.

Christine Charette, a textile technologist in NSRDEC's Aerial Delivery Directorate – as well as other members of the directorate and G1- Human Resources at NSRDEC – sought out McDonald to come to Natick after Charette heard an interview with McDonald and a separate interview with Bob Ebling. Ebling, who is now deceased and never quite got over the tragedy, was one of the lead engineers on the Challenger project.

"I do not ever want to be in a position to feel like I could have spoken up more strongly or done more to prevent an accident," said Charette.

Charette read extensively about the Challenger decision-making process and thought McDonald's message was an extremely important one.

"As a parachute textile subject matter expert to engineers, equipment specialists and program managers, I take very seriously the responsibility to develop and provide my technical recommendations to them, so together we ensure the safety of our Soldiers," said Charette.

McDonald told the NSRDEC workforce that when the Rogers Commission was formed to investigate the Challenger accident, at first he was not one of the people asked to speak. He sat in the back and heard leadership from NASA and Morton Thiokol downplaying the discussions prior to the launch decision and saying things that were not necessarily inaccurate but definitely misleading.

He knew he had to speak up, and he decided to raise his hand.

"No one paid attention to me because I was in the cheap seats, up in the dark," said McDonald. "So I started walking toward the floor to the commission's table."

He said that he thought the commission should know that the engineers were so concerned about the O-rings that they recommended not launching below 53 degrees Fahrenheit.

The commission was shocked to hear this.

When McDonald returned to work after speaking up, his company put him in a less-visible position, essentially a non-job. Eventually, Congressman Ed Markey from Massachusetts introduced a resolution into Congress to reinstate him to his former job. The resolution was passed by the full House of Representatives and also the full Senate. McDonald is the only person in American history to have his job restored by an act of Congress.

During his presentation, McDonald also discussed the Space Shuttle Columbia. The Columbia space shuttle had completed 27 missions before failing during its 28th, killing all seven crew members. He said that the Columbia accident had failures similar to the Challenger in terms of ethics and decision-making. He cautioned leaders against creating a culture of fear where people are afraid of pointing out problems.

"A good leader is not a boss," said McDonald, who subscribes to the servant approach to leadership. "You don't boss people. You don't manage people. You're servants to the people who work for you so that you can make them the best they can be for the job they're responsible for. They are willing to tell you anything because you have a good dialogue."

He told a highly engaged NSRDEC audience that the thing he wanted them to most remember from his talk today "is to always do the right thing for the right reason at the right time with the right people and you'll have no regrets."

He noted that the best decisions can only be made when all the information is on the table. He said that people must feel free to give their professional opinions.

"You don't always have to be right, but you always have to be honest," said McDonald.

"Each of us has to prevent overconfidence and complacency with regard to Soldier safety in our careers," said Charette. "Persistence, self-awareness and personal responsibility will keep our Soldiers safe. Each of us has a responsibility to provide our technical opinion when a safety decision is being made, and not to remain silent. It also helps to remind us of the risks of adopting a 'prove it's NOT safe' mindset when we should remain in a 'prove it is safe' mindset."

Opposite: Space Shuttle Challenger lifts off from Kennedy Space Center Jan. 28,1986.

Haiti Aid

Doctors use MRE components to save babies' lives

By Jeff Sisto, NSRDEC Public Affairs/NATICK, Mass. (Oct. 12, 2017)

Photo: Shannon Manzi

The Meal Ready to Eat, or MRE, the same individual field ration designed to sustain the health and energy of America's warriors on the battlefield, can also be used to nourish babies suffering dehydration in disaster zones.

That's what the U.S. Army's Natick Soldier Research, Development and Engineering Center's Combat Feeding Directorate, where food technologists first developed the MRE in 1982 and have continued to improve it since, recently learned after hearing a remarkable story about a unique application of the Army's most versatile field ration.

During a visit to NSRDEC for the Army birthday in June 2017, one of the invited guests, a captain in the Town of Natick's Fire Department, was sampling CFD's latest ration developments when he casually mentioned seeing emergency medical workers use MRE components to treat dehydrated babies in Haiti during the humanitarian response to a 2010 earthquake.

The captain's story amazed everyone in the room, particularly members of CFD, who were hearing for the first time about the critical role MREs played in saving young lives more than seven years ago.

"It was an interesting story," said Eryn Flynn, CFD's lead outreach coordinator, who facilitated the Army birthday ration samplings for distinguished visitors. "It was surprising to learn about MRE components being used as an emergency rehydration solution for babies in Haiti seven years after it happened."

EMERGENCY MEDICAL DISASTER RESPONSE

When a magnitude 7.0 earthquake struck the tiny, impoverished island-nation of Haiti in January 2010, causing hundreds of thousands of deaths, injuries and millions of displaced victims, aid workers from around the world faced an epic humanitarian crisis.

Within 72 hours of the catastrophic event, the Massachusetts – 1 Disaster Medical Assistance Team, or MA-1 DMAT, out of Boston, deployed to the capital city of Port-au-Prince in support of the international disaster relief efforts.

As the MA-1 DMAT lead pharmacist, Dr. Shannon Manzi was one of the first responders on the ground providing desperately needed medical attention to the injured and sick, including moderately and severely dehydrated babies.

Opposite: Disaster Medical Assistance Team, or MA-1 DMAT, out of Boston, who deployed to Haiti in support of the international disaster relief efforts to the earthquake in 2010 used the MREs salt, sugar, and drink flavoring packets to make an emergency oral rehydration solution for dehydrated babies and victims.

"In January of 2010, we saw, like everybody else watching the news, that there was a massive earthquake in Haiti," said Manzi. "When we are on call, if anything happens I have three hours to get to the airport. So my bag is always packed and ready to go."

Manzi, whose full-time job is as director of the Clinical Pharmacogenomics Service and manager for the Emergency Department and Intensive Care Units Pharmacy Services at Boston Children's Hospital, has also been on the MA-1 DMAT disaster team since 2001, deploying to both domestic and international disaster areas to provide emergency medical services to victims of hurricanes, earthquakes and other humanitarian crises such as the unaccompanied minor border crossings in Nogales, Arizona in 2014.

"I've responded to every hurricane named where federal assets were deployed, short of Andrew in 1992 – because I wasn't on the team yet. Additionally outside of DMAT, I have been on medical missions in Malawi" said Manzi.

When deployed, Manzi and her team are covered under the Uniformed Service Employment and Reemployment Rights Act, or USERRA, a federal law that establishes rights and responsibilities for uniformed service members and their civilian employers, which protects civilian job rights and benefits for veterans and members of the active and Reserve components of the U.S. armed forces.

Most recently, Manzi deployed with MA-1 DMAT to Hurricane Irma disaster zones, and is expecting to go to Puerto Rico in a few weeks.

"We're similar to the public health service in some ways, notably different in that we are intermittent federal employees with civilian full time jobs in our discipline. Our role is also significantly different from global health missions because we go into an area where there generally is a complete lack of infrastructure," said Manzi.

According to Manzi, MA-1 DMAT is one of 54 active disaster response teams right now in the U.S., with an average roster of about 100 healthcare providers from all different disciplines, including physicians, nurses, medics, pharmacists, respiratory therapists and behavioral health practitioners.

After being staged first at the airport and then the U.S. Embassy, Manzi's team finally reached the area that would become their field station.

"There were some NGO [non-government organizations] providers already there, but from an official U.S. government response, we were the first U.S. boots on the ground." said Manzi. "We ended up in a courtyard area within some buildings of an old medical school that the U.S. had built in the [19]60s and then abandoned for a new school that was built, but unfortunately, (it was) heavily damaged during the earthquake.

"But the courtyard was available and right next to the multitude of tent cities that were built, so we set up the whole works within that courtyard, with an operating room, patient care area, pharmacy, logistics, and billeting area for the staff."

Once on the ground, Manzi and MA-1 DMAT needed to link up with their command and control unit, called the Incident Response Coordination Team, or IRCT, to establish what their mission was going to be.

The IRCT's job is to find the missions and match them to each emergency medical response team based upon the needs, which were identified as "untreated wounds, ongoing medical care, and a huge concern for infectious disease, especially as conditions became more unsanitary," said Manzi. "As you can imagine, there's a lot of chaos that happens early on, and the goal is to have great communication to know what the needs are, but that's hard when there's no infrastructure to start with.

"Our mission was to establish a field hospital and take care of anyone that came to us. A secondary mission was to offload some of the general hospital because they were damaged, as well. They had patients on the lawn. They were overwhelmed and simply could not take any more patients."

Manzi's team treated a variety of patients and injuries.

"It really depends on the disaster," Manzi said. "We could have something as simple as a laceration, which doesn't require a lot of care, to something as complicated as an amputation, which we've had to do. And of course, all other types of medical patients. With Haiti, it was a lot of crush injuries, some burns, but mostly crush injuries.

"We treated everyone from hours old newborns to adults for wound care, to surgery; other patients had some brief interventions that had been done by someone else on the scene that we checked for infection, cleaned and bandaged back up, fevers, babies and adolescents for tetanus shots.

"You name it, we had it, and so it was a whole medical to surgical contingent.

"And then you get the pregnant women who are going to deliver no matter what; regardless of what Mother Nature does, it's going to happen. Our very first patient was an expecting mother who was about to deliver."

A SOLUTION BECOMES THE SOLUTION

"When you get shipped to Haiti with a whole bunch of insulin, and there's not a diabetic to be found and only six bottles of electrolyte replacement solution, you've got a problem," said Manzi. "As we went on with treating patients, we had a number of dehydrated pediatric patients; in fact, the vast majority of our patients were pediatric – orthopedic and pediatric – along with people who just didn't have enough to drink or eat.

"Then you get more diarrhea illnesses as the disaster goes on because you have compromised infrastructure, and their infrastructure was not all that robust to begin with."

According to the World Health Organization, or WHO, diarrheal disease, resulting in dehydration caused by contaminated food and water sources, is a leading cause of child mortality and morbidity in the world.

The WHO reports that during a diarrheal episode, water and electrolytes (sodium, chloride, potassium and bicarbonate) are lost through liquid stools, vomit, sweat, urine and breathing. Dehydration occurs when these losses are not replaced and is a life-threatening risk to infants and young children, especially when they are victims of natural disasters in developing countries.

"So we were really quickly running out of our electrolyte replacement solution that we brought with us," Manzi said. "There is a small amount in our basic load, which includes our pharmacy cache but it was never set up for this type of mission per se, so we ran out.

"Resupply at that point was a challenge. The airport was very severely damaged, and there were tons of flights trying to get in and out from all over the world, bringing supplies and relief workers in, trying to get people out of Haiti, so the airstrip time was extremely limited and getting supplies into the country was very challenging, to say the least. Basically, we knew a resupply wasn't going to happen anytime soon."

So when emergency medical workers ran out of the commercially made electrolyte solution they brought with them, Manzi had to improvise an alternative. She came up with an innovative solution.

"My supervisor asked me our status on rehydration solution, and I told him, 'It's bad; we only have two bottles left.' He asked, 'So what's your plan?'"

"I said, 'Well, honestly, I can make it. We're going to have to make our own bottles of solution because most of our patients are pediatric patients. I just need everybody to start dropping off their sugar and salt packets, and if they're willing to part with their drink flavorings, like fruit punch, etc., from their MREs for their water bottles."

The staff was more than willing to help out.

"I put a box out that said, 'Please donate to the kids. I need salt, sugar and flavoring packets,' and everyone had to pass the pharmacy to pick up their MREs, anyway, because of our location and where we were in relation to the MREs. And every day I'd have enough needed to make the WHO recipe.

"We had the 82nd Airborne Division there as our force protection, and even they were donating those components from their MREs. So it was more of a morale booster than anything else.

"It became more about buoying the feeling of people who were there helping. People would say to me, 'Hey, I'm going to go without sugar in my coffee today and give it to you for the babies.'

"So that's what we did. I had previously downloaded the recipe from the WHO website and was ready to go."

WHO's preferred low osmolarity oral rehydration solution calls for:

Full strength (to be used by those who can drink and are not clinically dehydrated):

75 mEq/L sodium and 70 mmol/L glucose.*

*glucose is preferred over sucrose, but home recipes allow for use of sucrose.

Half strength for oral or NG rehydration:

25 grams glucose (equivalent to 10 level teaspoons), 37.5 mEq sodium (equivalent to ~1/3 tsp table salt), 40 mmol potassium (equivalent to 40 mEq potassium), 1 liter clean water.

Final concentrations: 37.5 mEq/L sodium, 40 mmol/L potassium, 25 grams/L glucose.

Some recipes encourage ½ NaCl and ½ NaHCO3 or adding citrate to prevent hyperchloremic acidosis.

"We were able to use some of our intravenous potassium, which we weren't using otherwise at that time, unless they were going into the surgical suite," Manzi said. "So I was able to use the salt out of the MREs, the sugar out of the MREs, and the flavoring packet out of the MREs, and the potassium out of the intravenous solution, and make the WHO preferred oral rehydration solution, both full strength and half strength.

"I would mix the sucrose (sugar) with the sodium chloride (salt), take a look at it, then add the potassium I had available and obviously clean drinking water, bottle it up, label it. Sometimes I had flavoring to add to it, and sometimes I didn't. When I had the flavoring, it was definitely more appealing to the children.

"And for some kids, this was secondary for what they came in for. If they had an infection but were also severely dehydrated, we'd also treat them for that.

"We had some oral syringes with us for the very tiny babies and little ones. The big kids just drank it out of cups or whatever we had available. And for the kids that were too sick to drink it, we had to drop an NG [nasal gastric] tube, which you don't want to do if you can get the patient to drink it.

"It's a more appropriate rehydration solution to rebalance the electrolytes, especially when there's vomiting, diarrhea or just the inability to find clean drinking water. Over time, your electrolytes become completely unbalanced so there were some derangements that we had to fix, and those can be so severe that it causes seizures, muscles spasms and pain.

"I just kept making it because we didn't get resupplied during our deployment – at least five or six batches of that myself, and then taught the other pharmacist how to make it. I did the day shifts, and she did the night shifts.

"I ended up handing it over to the next team, who relieved us after a few weeks."

MRE BOXES BECOME INFANT INCUBATORS

Emergency medical workers also found novel ways to use different parts of the MRE packaging and cases they come in, something familiar to Soldiers.

"We also used the MRE boxes as cribs," Manzi said. "MRE boxes were a very coveted item because you can use them for anything. We had one on top of a stretcher and had to make basically an incubator for the newborn babies whom we needed to keep warm. So we put the space blanket in it and the other blankets inside that. Then we'd put a sign on it that said, 'Baby in a Box, Don't Throw Away.'"

Manzi's husband, also a member of MA-1 DMAT whom she met during Hurricane Katrina, uses the MRE bags' outer packaging for their waterproof properties.

"He attached Velcro to them to make his own waterproof packs," Manzi said. "When I deploy, I bring a lot of references with me, and when you're in the field, you have to be innovative when you're in an austere environment."

"We've known for quite some time that the MRE and its packaging has utility beyond just food," said CFD's deputy director Jeremy Whitsitt. "Soldiers and Marines are very innovative in finding creative uses for almost everything in the ration, but the way in which it was used in Haiti, as described by Dr. Manzi, is truly amazing."

"We're happy to have played a role in helping so many wounded, hurting, and displaced people."

Photo: David Kamm, NSRDEC Strategic Communications

Professional Development

PM FSS hosts event at BCIL

By Bob Reinert, USAG Natick Public Affairs/FORT DEVENS, Mass. (Oct. 12, 2017)

Participants learned about the capabilities offered by Force Provider Expeditionary Base Camps, and the ongoing research and development to provide deployed Soldiers more efficient shelter and life support systems while at the Base Camp Integration Laboratory during the 2017 G-4 Professional Development Event hosted Oct. 2-3 by Product Manager Force Sustainment Systems, or PM FSS.

Lt. Col. (P) Frank Moore, product manager, PM FSS, welcomed attendees to the BCIL, which opened six years ago at Fort Devens.

"The core of what we do is really life-support systems," Moore said. "Improving quality of life for Soldiers while deployed is very important. We want a high quality of life for Soldiers, but (these systems) also need to be energy efficient."

The laboratory features a pair of 150-person base camps – one set in a current configuration, the other to assess new technologies. Expeditionary base camp support is a priority of Army Chief of Staff Gen. Mark A. Milley in shaping the Army of 2025-2030, and that fact drew representatives from a variety of Army commands.

This year's event focused on the Army's Force Provider Systems. It sought to inform attendees about the Force Provider request and deployment process, to display and demonstrate current and future Force Provider capability, and solicit customer feedback, to review and validate current Force Provider Army Pre-position Stocks allocation, and to demonstrate contingency base planning tools.

"The basic Force Provider baseline configuration today is to support 150 personnel," said Matt Cooke, assistant product manager (acting), Force Provider and product support manager, PM FSS.

As Cooke pointed out, the current basic modular base camp comes in 22 Tricon containers and includes air beam shelters, a kitchen, showers, latrines, a laundry, water storage, and generators. A shower and laundry water reuse capability is also offered. A camp can generally be set up in a day or less.

"Everything you need," said Cooke, adding that Force Provider is "rapidly deployable, easily transported."

Force Provider has been used around the world in combat operational support, humanitarian assistance and disaster relief.

"We've got 83 camps deployed today," Cooke said.

Add-on kits are available for MWR facilities, chapels, cold weather, energy-efficient micro-grids, site preparation, prime power connection, water management, electric kitchen facilities, and quality of life. Rigid wall modules, which cut energy use in half, will be available over the next year.

Future 150-person camps will be able to add AMMPS micro-grids, solid waste disposal, shelter protection systems, and black waste remediation. Camps configured for 600 or more personnel will have the options of ice making, water bottling, and waste-to-energy systems.

Such technological advances have been made possible, in part, through insights provided by service members who use the BCIL as a training base.

"They come in and they live in Force Provider. We get their feedback," said Mike Hope, team leader, Combat Field Services Equipment Team. "That's really what's driven our modernization. We just listen to what the Soldier says."

Above: Ryan Eckert, an electrical engineer with Product Manager Force Sustainment Systems, or PM FSS, explains a shower water reuse system Oct. 2 at the Base Camp Integration Laboratory during the 2017 G-4 Professional Development Event hosted by PM FSS.

Esteemed Scientist Retires

Natick bids farewell to Quoc Truong

By Jane Benson, NSRDEC Public Affairs/NATICK, Mass. (Oct. 17, 2017)

Photo: Eduvin Aguirre

Quoc Truong's career as an Army scientist was inspired by his great love of science, his innate knack for thinking outside of the box, and his determination to repay the country that had greeted him with both kindness and opportunity.

For more than 33 years, Truong dedicated himself to making life better and safer for the American Soldier. Truong served as a physical scientist at the Natick Soldier Research, Development and Engineering Center, where he worked on leading-edge technologies and the development of advanced, innovative materials and textiles that have greatly benefited the warfighter.

As part of the first wave of refugees to come from Vietnam in 1975, Truong came to the United States at the age of 15. His family arrived at Fort Indiantown Gap Military Reservation, which at the time, served as a camp for Southeast Asian refugees.

"It was a big shock for me to listen to people talking to me yet I couldn't understand what they were trying to say," said Truong, who is known at NSRDEC not only for his scientific innovations, but also his warmth, helpfulness, kindness and humor.

"One of my first thoughts was that I will never be able to make anyone laugh because I couldn't speak English," said Truong. "At the refugee resettlement center, I attended the English classes that were offered to us regularly. Each student received a thin, yellow Vietnamese-English/English-Vietnamese dictionary, and that became my bible as I had it with me everywhere I went."

His family – including his grandmother, father and eight siblings – soon settled in Pittsburgh, Pennsylvania, where they were sponsored by the St. Bede Church. His family instilled in him a tireless work ethic and an unwavering dedication to making a contribution to society.

"I wrote a message to myself that read, 'If you don't worry about your future, you won't have any,' and I taped it in front of my desk," said Truong. "Not knowing English when I first came, I told myself that I must put in ten times the effort if I am going to be as good as my friends in school, and I set out to learn as much as I could learn about everything to get ahead. My father always told us his only wish was to see us, his nine children, do well in school. He told us that no matter what, we all must graduate from college to be successful in this new country."

In 1978, the family relocated to Boston, Massachusetts, and Truong eventually studied at the University of Massachusetts Lowell.

"When I was a junior at UMass Lowell, I saved a help-wanted ad, and it was for a chemist at Natick. I thought 'I want to work for the Army to pay back the government for all the wonderful things it did for my family.' When I graduated, I was hired by Natick. I feel really fortunate that I have this job with the opportunity and the freedom to explore new ideas."

During his distinguished career working for the Department of the Army, Truong developed new technologies that greatly improved protective clothing for the nation's warfighters. Many of these technologies have made their way to the private sector where they benefit the consumer.

The scientist is known for his ingenuity and for his work with other NSRDEC scientists, as well as partners in academia and industry. He has been published extensively and his work has earned international recognition.

Truong is recognized as a pioneer for non-carbon-based, selectively permeable membrane developments. He is considered one of the "brains behind the membranes." The selectively permeable membrane technology greatly reduces the use of carbon in chemical-biological protective clothing. Since carbon adds weight and bulk to clothing, the new garments are dramatically lighter and offer better protection than their predecessors.

The novel materials provide enhanced protection against toxic compounds, but also allow moisture vapor to pass through the clothing, thus providing relief from heat stress through evaporative cooling. The chemical-biological protective duty uniform, which is based on selectively permeable membrane technology, was a candidate for the Army Materiel Command's Top Ten Inventions in 2003.

Truong successfully led the development and transition to the commercial sector of a durable omniphobic textile coating, which will benefit both the warfighter and the consumer. The coating lowers dirt and dust attraction and it repels water, oil, and many liquid chemicals. The coating greatly enhances protection while reducing how often garments need to be washed. In the commercial sector, the technology is being applied to everything from outdoor wear to diapers.

Opposite: Quoc Truong, an esteemed physical scientist, discusses a process used to create superomniphobic surfaces with Dr. Artee Panwar, who is a postdoctoral researcher at the University of Massachusetts Lowell.

Always innovative, Truong invented a new architecture for super non-wetting fibers. The resultant fibers mean improved warfighter protection against toxins and other threats since the fibers will keep out chemicals, oil and solid contaminants. In addition, he contributed to developments in superomniphobic coatings, fibers, and films.

At the forefront of the technical development of self-healing capabilities, Truong also worked on materials that will be used to mend chemical-biological protective clothing. The self-healing technologies will enable cuts, tears and punctures to repair themselves.

In addition to being a committed Army scientist, Truong is known as an accessible and dedicated mentor.

During his time at NSRDEC, Truong was very active in NSRDEC's and the University of Massachusetts Lowell's joint research and development initiative called Harnessing Emerging Research Opportunities to Empower Soldiers, or HEROES. Truong served as a collaborating research scientist and as a mentor to students, as well as young scholars and employees at NSRDEC.

"As an older brother of five younger siblings, I took on the responsibility to coach them with their school work to help my father, and in keeping a promise to my mother," said Truong. "My mother told me to take care of my brothers and sisters. She told me this just hours before she passed away. This was two years before our family was forced to leave Vietnam due to the war. Perhaps this is why I love to mentor and help young students. I enjoy having the opportunity to help the postdocs and students succeed as my younger siblings did."

"I had the pleasure of working with Quoc on multiple projects," said Dr. Nese Orbey, a professor at the University of Massachusetts Lowell. "He always comes up with creative solutions to challenging problems. In addition to his technical expertise, he is a good mentor. He has mentored both undergraduate and graduate students at UMass. He will be missed greatly."

Dr. Christopher Zoto, an assistant professor at the Community College of Rhode Island, worked with Truong for two years as a postdoctoral researcher under an Oak Ridge Institute for Science Education, or ORISE, contract fellowship. He worked with Truong on a variety of research areas, all aimed at protecting the Soldier from exposure to hazardous chemicals.

"I found working with Quoc on the Chemical Sciences and Engineering Team for the past two years at NSRDEC to be a very rewarding, enriching, knowledgeable and a good experience overall," said Zoto. "He is a well-respected role model who portrays the values of hard work, kindness and honesty. I have come to know him not only as my research mentor, but also my friend. It has been an honor and a privilege working with him."

During a retirement ceremony held recently at NSRDEC, Doug Tamilio, director of NSRDEC, thanked Truong for his immense contribution to advancing warfighter protection, noting that "The impact of an individual like this is immeasurable."

Tamilio presented Truong with a Certificate of Appreciation, a Certificate of Retirement and a technical director's coin. Truong also received a citation from the office of Massachusetts Governor Charlie Baker and the office of Massachusetts State Senator Linda Dorcena Forry.

"Quoc has an immense passion for science and a passion for innovation," said Andra Kirsteins, team leader of the Chemical Science and Engineering Team, during the ceremony. "This is what really made him successful. You would never hear from Quoc why something could not be done. He always had an idea to solve a difficult technical problem. You'd always hear him say, 'I want to do something for the Soldier.' He wanted to make a difference."

In addition to his contributions as a scientist and mentor, Truong raised four children as a single father. All four went on to become successful adults.

"Anyone who knows me knows that my father is the biggest inspiration in my life," said Dan Truong, Quoc's son. "Throughout my entire life, my father has been nothing but kind, supportive and patient. I feel my father has taught me everything I need to know about patience and about what family truly means. My father did his best to always be there for us, his kids. Teaching us to be good people and putting all four of us through college is nothing short of a miracle. I try to tell everyone that I meet that I hope I can be half as good of a father as my father has been to us."

Mary Truong, who is Quoc's sister, is the executive director of the Office for Refugees and Immigrants for the Commonwealth of Massachusetts. During the ceremony, she shared a memory she had of Quoc as a child.

"Even while growing up, he was innovative in many, many ways," said Mary Truong. "He was always fixing things. He was a little bit of a rascal getting into things so I can see why he is so successful today. I feel very proud and very blessed to be his sister."

While growing up, Quoc Truong was eager to help his father, who was supporting nine children and their grandmother. In Vietnam, his father was a bank president and owned many businesses. His father left it all behind to give his children a chance for a better life in the United States.

"Quoc tried his best to help our father by working as soon as possible," said Mary Truong. "His first job was as a newspaper boy. He got up at 4:30 a.m. to deliver newspapers to many houses in our neighborhood and he always helped my father with chores. He could build and fix anything in the house, even though he had no formal training.

"He's very creative, talented, committed and focused. Because of his many good qualities, I'm not surprised that he achieved so much during his years at his job. I'm so proud of his accomplishments to help the U.S. Army, the Soldiers and all the students he helped at UMass Lowell through his inventions and mentoring."

Throughout his life's journey, the Army scientist has shown great gratitude toward this nation and its opportunities.

"I am thankful that all nine of us graduated from college and fulfilled our father's dream," said Quoc Truong. "We all realize now that our father was right – this is the land of opportunities, but to be successful, you must make an effort as an individual to get ahead and pursue your areas of interest."

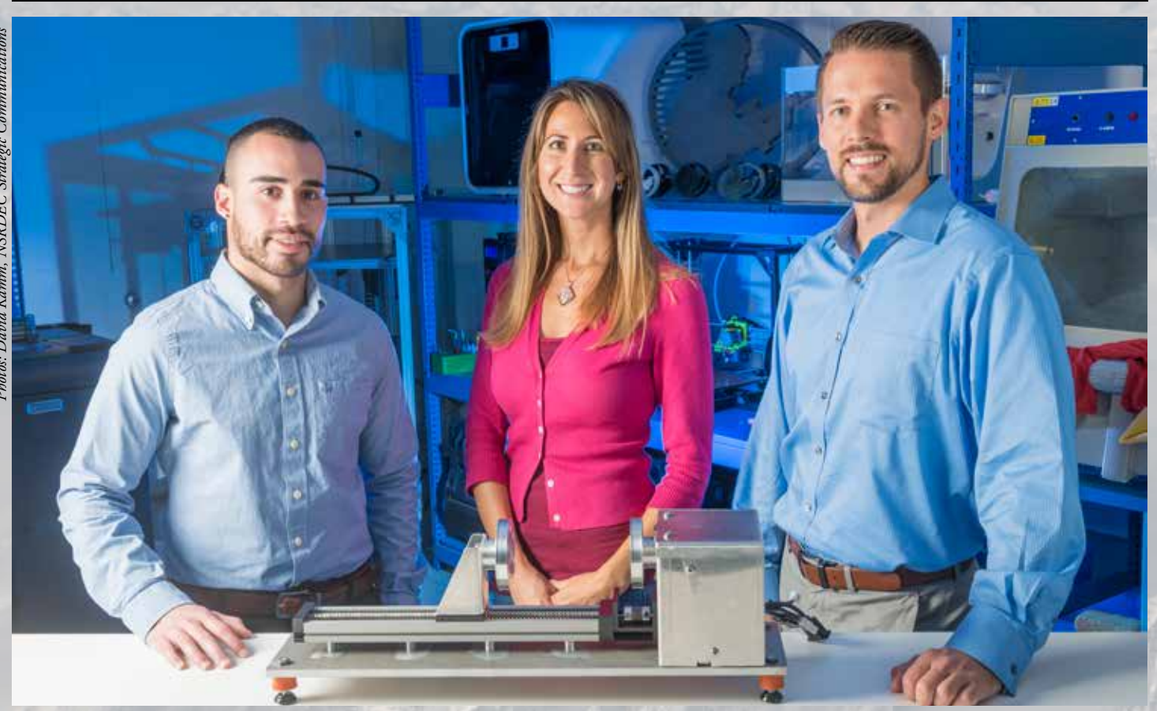
"We all know that refugees help communities grow economically, creating new businesses and professional opportunities," said Mary Truong. "They also enhance social and civic participation, taking more active roles in local politics and governance. Refugees and immigrants help to make America great. This is the land of the free, so we hope that Americans will always welcome them."

"When I came here from Vietnam, I was only 15," said Truong. "The American government and people were so helpful and so welcoming to our family. As a result, my eight brothers and sisters are now productive citizens. We will forever remember the kindness of our American friends."

Extreme Conditions

Natick develops new test aparatus

By Jane Benson, NSRDEC Public Affairs/NATICK, Mass. (Sep. 22, 2017)



Photos: David Kamm, NSRDEC Strategic Communications

When it comes to protecting the nation's Soldiers, researchers at the Natick Soldier Research, Development and Engineering Center, or NSRDEC, are willing to go to extremes.

NSRDEC researchers are developing an Extreme Weather Fabric Test Apparatus to address shortcomings in existing test methods used to evaluate shelter textiles.

Due to mechanical limitations, current test methods are unable to accommodate the rapid flexing of fabrics at extreme temperatures ranging from minus 60 to 140 degrees Fahrenheit. The rapid flexing of fabrics can be caused by wind or by the act of taking down or putting up a shelter.

The new test apparatus will enhance NSRDEC's ability to simulate the effect of extreme temperatures and wind on fabrics employed in soft-wall shelter systems.

"The test fixture will be able to flex a textile and/or film at extreme temperatures, thereby aiding NSRDEC scientists and engineers in more accurately forecasting the durability of a material under severe environmental conditions," said Christian Aall, a mechanical engineer on NSRDEC's Fabric Structures Team.

Background Photo: NASA

The need for the testing capability came to light during a joint shelter deployment exercise. The exercise, which took place in Thule, Greenland, involved a partnership that included NSRDEC, the Cold Regions Research and Engineering Laboratory, the U.S. Army Corps of Engineers and the National Science Foundation.

In addition, by more accurately simulating environmental loads, the new test apparatus will also aid in the development of new shelter materials.

"As an end goal, our team hopes to develop a new test standard based upon the fixture's design," said Liz Swisher, team leader for NSRDEC's Fabric Structures Team. "This will enable other laboratories, within government and private industry, with the ability to execute a repeatable and proven methodology, helping to better predict a fabric's long-term performance once it's been fielded."

"By leveraging this new test fixture, future shelter material selections and development will be made with greater confidence," said Aall. "New materials may be screened for suitability, and their limitations when implemented into a design may be discovered. For instance, a fabric with an integrated seam, zipper or hook-and-loop closure system may also be stressed to evaluate integrated sub-components for extreme environment survivability."

The apparatus is good news for the Warfighter.

"This apparatus will provide for more realistic fabric performance validation, and thereby benefit the Soldier with higher-performing fabric-containing equipment, specifically in the areas of durability and weight," said Aall.

"The development of this fixture will increase NSRDEC's testing capability by supporting the inspection and selection of textile solutions," said Luis Padilla, a mechanical engineer on NSRDEC's Fabric Structures Team. "This will help engineers and scientists to foresee the performance and survivability of the military deployed assets, which will result in reduction of deployment costs and increased mission readiness for the Warfighter."

"Any product with increased reliability and durability helps the warfighter in accomplishing their mission and reduces logistical burden," said Swisher.

The development of the new apparatus was made possible by NSRDEC's innovative Bootstrap Initiative. Dr. Ken Desabrais, NSRDEC's human protections administrator, conceived the Bootstrap Initiative, which was implemented to encourage out-of-the-box thinking, promote risk-taking and enable employee participation – all while streamlining processes and minimizing bureaucracy.

"Often, as government civilian engineers, we find ourselves conducting project management duties, and are therefore limited in our ability to leverage funding for internal research and development efforts," said Aall. "The Bootstrap effort provides NSRDEC civilian engineers the opportunity to leverage their academic background by engineering a novel warfighter-supporting solution in a hands-on manner."

"The Bootstrap program has been a great way of giving us engineers empowerment to seek some ideas outside of our daily projects," said Padilla. "In addition, it has provided a gateway to utilize skills that are not necessarily essential for our job, but we are certainly passionate about, including programming, 3D modeling, and design for manufacturing. Furthermore, the effort that has been made to develop this apparatus has helped strengthen the collaboration between the Textile Materials Evaluation Team, Engineering and Fabrication Cells and the Fabric Structures Team."

NSRDEC researchers initially developed a CAD model prototype and through engineering calculations ensured it met standard requirements. NSRDEC's in-house, rapid-prototyping capabilities also played a role in prototype development.

"Following the creation of such a CAD model, we used in-house, rapid-prototyping equipment to 3D print a static display model," said Aall. "After procuring additional components and hardware, we built a functional prototype with support from the NSRDEC machine shop. In addition, a prototype user interface on a programmable microcontroller has been developed to control the electromechanical sub-systems of the test fixture."

Aall is grateful to be able to use his know-how on a team that is dedicated to the Soldier.

"The ability to leverage skills attained through personal interests in electromechanical engineering, and being able to work with a highly engaged team that is passionate about the product we are developing, is very rewarding," said Aall.

> "As an end goal, our team hopes to develop a new test standard based upon the fixture's design. This will enable other laboratories, within government and private industry, with the ability to execute a repeatable and proven methodology, helping to better predict a fabric's long-term performance once it's been fielded."
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> Liz Swisher, NSRDEC Fabric Structures Team

Researchers at the Natick Soldier Research, Development and Engineering Center are developing an Extreme Weather Fabric Test Apparatus to address shortcomings in existing test methods used to evaluate shelter textiles in extreme conditions like those pictured here. Due to mechanical limitations, current test methods are unable to accommodate the rapid flexing of fabrics at extreme temperatures ranging from minus 60 to 140 degrees Fahrenheit. The new test apparatus will enhance NSRDEC's ability to simulate the effect of extreme temperatures and wind on fabrics employed in soft-wall shelter systems.

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Photo: Tonyam Meal